State of Michigan

Microfilm Guidelines

"Responsibility of Source Document Owners to Monitor the Work"

Microfilm technology has been around a long time. It is a tested and reliable technology with established national and international standards.

Records Management Services provides microfilm assistance to departments and agencies in partnership with its sole source microfilm contractor.

Records Management Services recognizes that the creation of records is a fundamental aspect of the management of any business operation, government or private. Information is an asset. Therefore, it is important that agencies determine how and why records are being created. Consideration should be given to capturing appropriate content, and design considerations at the beginning of record creation.

Due to legal requirements, the management of records and information is critical to state government. The institutional knowledge base of the organization depends on its ability to store and access relevant information.

Records management is changing from the traditional focus on the form of records and their storage, to a broader focus on how a record's content and value relate to legal issues and business needs. Using information to create value and plan strategically is a driving force in today's world. Preparing documents in anticipation of the need to store and retrieve quickly in a work environment, with reduced human resource numbers must be a key-part of the State of Michigan's strategic efforts for all departments and agencies.

This booklet provides valuable information to help agencies to plan, understand and streamline their efforts using microfilm technology.

Statement of Work

The first step in microfilming documents is the development of a statement of work. The statement contains the general and specific tasks and responsibilities of the microfilm contractor and the State of Michigan. It clearly lays out the scope and purpose of the microfilm project as it pertains to document preparation, document indexing, quality control and quality assurance.

The following sections highlight those areas most important for your agency to ensure an eye-readable end product using microfilming. These are:

- Document Preparation
- Document Indexing
- Quality Control
- Quality Assurance
- Microfilm Storage

Documents

"A container of information…organized and presented to provide meaning and context to the information…it can be a form, letter, spreadsheet, memorandum, photograph, video clip, or report."

Document Preparation

Document Preparation is important to ensure accuracy and quality of final product. This is a time consuming process. It can be the most expensive part of the process and is often overlooked in developing a microfilm application. A document preparation process plan for your microfilm project must be defined, developed and recorded in detail.

Document Preparation is very labor-intensive. Someone from the agency who is considered to be the "document expert" should be involved in developing the instructions for this process. This person must have expert knowledge of files and documents, and be able to guide the effort. This includes taking the lead with other staff involvement to prepare the documents for microfilming. The most basic of assignments that need to be addressed and completed are:

- Removing staples and rubber bands from source documents
- Flattening and unfolding documents
- Purging duplicates
- Verifying records order

Procedures are then developed that include instructions for extraction of staples, use of paper clips, removal of post-it notes, and when to copy a new page in order to enhance or ensure clarity of the source document. Decisions to purge obsolete documents or separate documents based on their value to the organization should be the responsibility of the agency and not be a contracted function. The procedures must also address varying paper sizes and weights, and the repair of torn pages.

Starting document preparation early helps projects stay on schedule, ensures a good output, and saves money.

Assistance in this effort is available through Records Management staff. An outside vendor, under the direction of Records Management Services, will guide your efforts in documenting the preparation process.

Document Indexing

Records management is more than the form of records and their storage. It has a broader focus on content, value and use. If your records are in a paper format, the process to find them is labor intensive. The time necessary to produce a file could run from several minutes to several days depending on where it was stored. In order to efficiently find and use a record, an indexing system for quick retrieval needs to be developed.

A Computer Assisted Retrieval (CAR) indexing system can provide access to records and save countless staff hours because it can increase accessibility for retrievals.

CAR involves filming documents on a rotary camera using multilevel image marks or blips. A bar code identifying a key subject item: a department numerical identifying number or by subject matter - is placed at the beginning of each file. By counting the blips, the CAR system allows the camera to document where one file ends and another begins. The information along with a sequential roll number is sent to the indexing software within the camera and downloaded into a computer program that runs the index.

In order to take advantage of a CAR indexing system, a reader/printer with an automatic search mode is required.

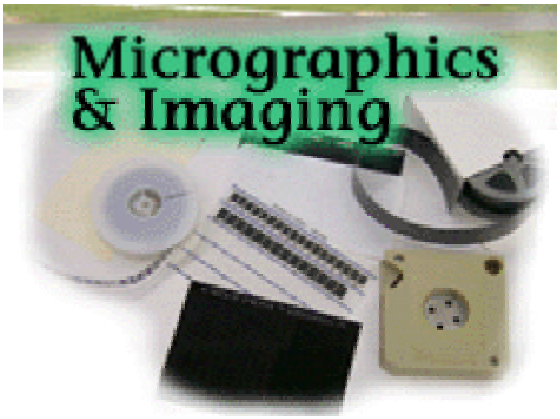
Quality Control

Record keeping requirements must include emphasis on quality source documents. The agency or department, as document owner, must determine the level and degree of inspection necessary to ensure that acceptable quality levels are met. The State contractor charged with responsibility to convert documents to acceptable microfilm images has established appropriate quality assurance measures. These include at minimum:

- Microfilm conversion application procedures to ensure that staff has the training and time to perform the tasks necessary for a quality output. Tracking and reporting systems to insure a timely workflow.
- Developed microfilm conversion systems to allow for both quantity and quality measures for each task in the conversion process.
- Film inspection processes that exceed ANSI/AIIM standards.

Active agency/department participation through the entire process is important. At the end when the microfilmed product is delivered, quality assurance rests with the source-document owner.

Quality Assurance



In partnership with Records Management Services, the agency/department-owner of the source document, upon receipt of microfilmed documents, must ensure that quality film has been produced, that master negatives are properly stored and that the film can be quickly and easily accessed and used.

The agency's role is to monitor the overall quality and accuracy of the filmed product. An inspection of the film by the agency is necessary to verify that all required technical targets have been met, and to make sure that the overall quality of the microfilm meets the desired standards of the agency.

Verification is needed to ensure that all information is readable, can be recognized in the original, and can also be recognized on the microfilm images created. All microfilm should be inspected to insure the objectives of the microfilm process were successful. At minimum the agency should inspect for proper labeling, presence of proper resolution charts and film targets, and the general condition of the film product. This can usually be done in a matter of minutes by loading the film on a reader printer and spot-checking every 5 to 10 feet. A more extensive inspection should be done for micro filmed records, which have vital or archival significance to the agency or the State.

If any of the defects in this list are found, contact Records Management Services. The microfilm vendor will need to correct the errors, explain why the errors occurred, and why the errors were not identified in the quality control process.

Microfilm Storage

Original microfilm (silver gelatin film) has the potential to last hundreds of years if properly stored. However, this film type is at risk if not properly cared for. Master or original microfilm must be stored in an environmentally controlled facility. The longevity of photographic records depends on the chemical stability of the film, the processing techniques used, and the care taken in the storage of the film.

As part of your quality control efforts at delivery, it is essential to make sure that film intended for long-term storage is not mixed with film to be used on a daily basis as a work copy. **The original master film must be returned to Records Management Services for proper storage, after successfully meeting inspection. The original master film should only be used for duplication purposes should the working copy become damaged or unreadable.**

Working copy film is subject to much handling for quick reference and will be exposed to:

- Dirt
- Abrasions
- Fingerprints
- Contamination from foreign materials
- Excessive light and temperature
- Harmful atmospheric pollutants

Keep your work copy film stored away from the following, in order to ensure maximum life expectancy:

- Ammonia
- Automobile Exhaust
- Cardboard Cartons
- Excessive Temperature and Humidity
- Floor Cleaning Agents
- Hydrogen Sulfides
- Nitrogen Oxides
- Organic Solvents
- Paint fumes
- Peroxides
- Rubber Bands
- Sulpher Dioxides

The following chart outlines minimum and maximum temperature requirements for original (master) and work copy microfilm.

	Extended- Long Term		Medium Term	
	Relative Humidity %	Max Temperature	Relative Humidity %	Max Temperature
Silver Gelatin	20-50	69.8F	20-60	77F
Diazo	20-50 20-40 20-30	14F 26.6F 35.6F	20-60	77F

Contact Records Management Services consultants who can assist your agency or department to ensure proper storage.

Microfilming Source Documents

"The process of filming documents that were once hard copy to a format that greatly reduces its size, allows for ease of storage, and long term retrieval and use."

Frequently Asked Questions

How does an agency or department determine or prioritize what documents need to be stored for retrieval and what documents can be tossed?

Agencies and departments need to develop a records retention plan in conjunction with Records Management Services. The plan establishes a partnership between the agency/department and Records Management in the proper storage and disposal of state records. Retention schedules are developed for all records, regardless of the media on which they reside. The period for which a record is retained is based on the business needs of the organization, legal requirements if any, fiscal/audit requirements if any, and the historical needs of the organization.

What is source document microfilm, and when would my agency use this application?

Source Document Microfilm is the process of converting paper documents to microfilm rolls, jackets, or aperture cards. Microfilm is best used for those records which have a high volume and a long retention period. Microfilm also a good media for providing a disaster recovery mechanism for vital records. Records Management provides analytical service, and storage services for these products.

The benefit of microfilm is that it takes up a fraction of the storage space of paper. Microfilm, if processed and stored correctly, is considered an acceptable alternative to the original paper for long term storage of information. A reader-printer easily converts pages from the microfilm to paper if needed.

Our agency wants to pursue microfilm as an option to store documents, what do we do to accomplish this task?

Records intended for microfilming must first be placed on an agency specific Records Retention and Disposal Schedule. Contact Records Management to pursue development of a microfilm application.

Records Management Services will assist you in justifying the need for the microfilm application, include the application on your Retention and Disposal Schedule, and assist you in preparing for production. This service is free to all State agencies.

Costs of microfilm product will vary and be dependent on the requirements of each application. For more information regarding microfilm as an alternative to paper, contact Records Management at 517-335-9132.

What services do you provide for storing microfilm documents?

Storage of microfilm in a temperature and humidity controlled area is a service provided by Records Management Services for microfilm with a retention period greater than 10 years. Microfilm with a retention period of 10 years or less is stored at the State Records Center. Storage of computer cartridges and optical disks is also available.

What is Computer Output Microfiche?

Computer Output Microfiche (COM) is one of the services provided by Records Management for storing data. The benefit of microfiche is that it takes up a fraction of the storage space of a report printed on paper and allow for the removal of data from computer systems avoiding the need for additional disk space. Another benefit is that microfiche can be indexed in order to locate necessary information quickly and easily. A reader-printer easily converts pages from the fiche to paper if needed.

It is easy to put your reports on COM. Computer generated data is transferred to a microfilm lab from the Michigan Information Processing Center (MIPC) or from agency data centers on a magnetic or optical media.

What are the advantages of COM technology?

COM data is printed on 105 mm microfilm using a programmed job set up created for each individual report that is submitted. The final product will have a title that can easily be read without putting the fiche in a reader and contains all the information the customer needs for quick and easy retrieval of their data. One 42X microfiche can store up to 207 full pages of data, while one 48X microfiche can store up to 270 pages.

Where can I get more information and assistance on developing microfilm or Computer Output Microfilm (COM) systems?

The Department of History, Arts and Libraries, Records Management Services provides technical advice and assistance to agencies. A consultant can meet to discuss your needs and guide your agency to the best solution. For more information contact: Michigan Department of History, Arts and Libraries Records Management Services, 3405 North Martin Luther King Blvd., .Lansing, MI 48909 Phone: 517-335-9132 Fax: 517-335-9418 Email: recordscenter@michigan.gov

Glossary of Terms

Computer Aided Retrieval (CAR) – The technique that uses a computer to identify, locate, display or manipulate microforms or micro-images.

Density – In micro-graphics, it is the degree of light absorption, reflection, or scattering characteristics of a photographic image.

Exposure – An act of exposing a sensitive material to radiant energy in order to obtain an image.

Film Cleaning – Removal of foreign matter that may cause damage to the film or that detracts from the film's image. Cleaning techniques include dusting or wiping, cleaning solvents, ionized air and ultra-sonic.

Focus – Rays of light reflected from a subject converge to form a sharp image after passing through different parts of a lens. Adjustments can be made relative to the position of the lens and film to obtain the sharpest possible image.

Fogging – A defect in film that can be caused by stray light during exposure, improper process solutions or outdated photographic materials.

Haze – Light scatter in film base or other essentially transparent material.

Jam – Defect in microfilm that appears as parts of documents followed by a dark streak on the film.

Overlap – Defect in which one image of a document partially or completely obscures the image of another. This is caused through improper setting of the document stop, or improper clutch adjustment.

Pressure Marks – Defect found in processed film that may appear as reduced or increased density.

Raw Stock – Unexposed, unprocessed photographic film, paper or other recording material.

Reticulation – Processing defect that affects emulsion layers of photographic film, which on drying show an irregular surface due to the formation of small irregular scaly patterns. Sharp differences in temperature or pH of successive processing solutions are the usual causes.

Scratch – Dark or light groove; it is often linear that damages the base or the sensitized side of the film. It is caused either by faulty equipment or improper handling.

Streak – Light or dark area through a number of images, parallel to the edges of the film.

Stretch – Elongated image that is caused by the document stopping, hesitating or slowing down, while the microfilm continues to advance in the rotary camera.

Synchronize – To take place at the same time, e.g. the film and documents in a rotary camera are synchronized.

Washboard – A defect in film that appears as alternate bands of greater and lesser density across the width of the film. This may be caused by fluctuating illumination or faulty document or film transport.

Water Spot – Defect in film that may be caused by deformation of the gelatin layer in an irregular spot pattern, which is caused by water drops on the surface during drying due to improper squeezing or residue from materials in the wash water.